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ABSTRACT

This study examined the "educare" experiences of infants and toddlers in New Zealand child care centers to evaluate whether those experiences provided opportunities for learning. Subjects were 200 under-2-year-old children (99 boys and 101 girls) from 100 childcare centers, 2 children from each center. Subjects were each observed for 80 minutes of structured time-sampled observations and 30 minutes running records of the child's activity in context. The results showed that children initiated many interactions with adults, most commonly through vocalization. Crying, requesting, physical actions, and positive affect were much more infrequent. Most of the children's initiations received either positive or neutral responses from adults. Children were engaged more than three quarters of the time when they were observed but spent about 14 percent of the time wandering or waiting. Children were somewhat unlikely to be involved in joint play activities with an adult, which occurred only 7 percent of the time. A third of all children in the study participated in no joint attention at all. Qualitative data provided evidence of the overall responsiveness of high quality centers and the richness of joint attention episodes as contexts for learning. (Contains 33 references.) (Author/AA)

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Educare for infants and toddlers in New Zealand childcare centres: Is it a reality and how important a component is joint attention?

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ABSTRACT

This study examined the experiences of infants and toddlers in New Zealand child care centres to evaluate whether they provided opportunities for learning. Two hundred under two-year-old children (99 boys and 101 girls, two children from each centre) in 100 childcare centres were observed for 80 minutes of structured time-sampled observations and 20 minutes running records each. The results showed that children initiated many interactions with adults, most commonly through vocalisation, with crying, requesting, physical and positive affect being much more infrequent. Most of children's initiations received either positive or neutral responses from adults. Adults initiated interactions to children in about a third of all intervals, most commonly by talking. Children were engaged more than three quarters of the time when they were observed but spent about 14% of the time wandering or waiting. Children were somewhat unlikely to be involved in joint play activities with an adult, these occurring only 7% of the time. Two hundred and thirty-six episodes of sustained joint attention were observed during running records and a third of all children in the study participated in no joint attention at all. Qualitative data provided evidence of the overall responsiveness of high quality centres and the richness of joint attention episodes as a context for learning.

The purpose of this study is to examine critically the nature of infant and toddler experiences in New Zealand child care centres. The concept of "educare" suggests that education and care are inseparable components of early childhood learning environments, and that these can be provided in caring responsive social contexts which promote children's social and intellectual development. Recent theoretical perspectives in early childhood education suggest that it is important to consider how the social and cultural context of development affects the child (Fleer, 1992; Rogoff, 1990; Smith, 1996). Models of development which emphasise the child's natural and spontaneous development from within or of development as being shaped entirely externally through learning processes have been strongly criticised (Bruner, 1995; Bruner & Haste, 1987; Light, 1986; Morss, 1996). Sociocultural perspectives emphasise that children's higher mental processes are formed by the scaffolding of children's developing understanding through social interactions with skilled partners. If children are to acquire knowledge about their world it is crucial that they engage in shared experience of relevant scripts, events and objects with adults (and peers).

One essential ingredient of sensitive environments is a close and nurturing adult-child relationship. This is essential for intersubjectivity, which allows the caregiver to judge how much the child already knows and understands, so that she can provide appropriate scaffolding to extend development. In order to achieve intersubjectivity, adults need to establish a shared context of meaning and experience with children. This is particularly crucial in infancy and toddlerhood because children's ability to communicate both verbally and non-verbally is at an early stage and needs to be interpreted and extended by sensitive adults. Children gradually grasp that experience is shared and come to "know others' minds" (Bruner, 1995). Bruner says that they do this by two acquiring two important pieces of knowledge. First that other people are agents dedicated to attaining ends, and that there is a "standing for" relationship between arbitrary signs and the world of experience (words and things). According to Bruner, children's ability to handle intersubjective encounters depends on:

> reciprocal interaction with... more competent members of the culture, adults treating the child as an agent and bent on "teaching" him to be more so (Bruner, 1995, p6).

An essential feature of high quality early childhood environments is the extent to which adults participate with children in joint attention to objects, activities or ideas. Recent research evidence suggests that the engagement of adults and children in joint attention episodes has many important functions in early development (Moore & Dunham, 1995). For example joint or shared attention allows basic information to be conveyed, affective understanding to be apprehended and provides the basis of shared experience needed for the acquisition of language (Corkum & Moore, 1995). Bruner believes that joint attention is in effect a "meeting of minds" which allows a shared focus, shared context and shared presuppositions to develop. Children gradually make sense of the way adults interpret the world for them, and this process is particularly powerful in infancy. Hence environments for infants and toddlers, both at home and within childcare centres, need to be scrutinised in more depth and detail to if we are to judge whether they do indeed provide opportunities for these shared experiences. Little attention has been given to analysing caregiver-child interactions at a microscopic level.

It has been recognised for some time that a major ingredient of quality environments for young children comes from the people who are most directly responsible for their care and education. This "people component" of quality has most often been looked at through the influence of structural variables such as ratio, training and staff turnover (Broberg et al, 1989; Howes, 1991; Kaplan & Conn, 1984; Lamb and Sternberg, 1990; McCartney, 1984; McCartney *et al*, 1982; Ruopp *et al*, 1979; Travers *et al*, 1980; Volling & Feagans, 1995; Whitebook *et al*, 1989), but attention has also been given to dynamic variables like expressiveness and sensitivity of caregivers with children (Anderson, 1981; Burchinal, Roberts, Nabors & Bryant, 1996; Clarke-Stewart, 1982; Howes & Stewart, 1987; Howes, 1983; Lamb and Sternberg, 1990). There are clearly links between structural and dynamic aspects of quality (Dunn, 1993; Burchinal *et al*, 1996) but the present study focuses on dynamic aspects.

Smith and Van der Vyver (1993) have argued that there are a number of identifiable components of good quality infant child care which parents may use to help them make a good choice of centres for

their own infants. The sensitivity, and responsiveness of the staff is a fundamental criteria of quality along with certain structural characteristics of childcare centres, such as adult/child ratio, group size, and training and qualifications of caregivers which are also thought to be linked to quality.

Bronfenbrenner (1979) analyses the optimal conditions for learning and development in the microsystem (the immediate setting of the developing person - in the case of infants in childcare centres both home and childcare centre are microsystems). He says:

> Learning and development are facilitated by the participation of the developing person in progressively more complex patterns of reciprocal activity with someone with whom that person has developed a strong and enduring emotional attachment and when the balance of power gradually shifts in favor of the developing person (Bronfenbrenner, 1979, p 60).

He argues that the capacity of group settings to enhance learning in children depends on how caregivers engage with children in such behaviours as questioning, instructing, responding, praising and comforting.

The present study is designed to examine how sensitive and responsive New Zealand childcare staff are to child behaviour and how such sensitivity and responsivity is related to child behaviour. The study also looks at the nature and extent of joint attention episodes within childcare centre experiences for infants and toddlers.

METHOD

SAMPLE

One hundred childcare centres licensed for under two-year-olds in Auckland, Wellington, Christchurch and Dunedin areas were selected for the study. (The wider findings of this study have been reported in Smith, in press). Seventy four centres in the eventual sample came from the cities of Hamilton, Palmerston North, Wellington, Christchurch, Dunedin and Invercargill and the other 26 came from smaller provincial towns. The study was a fairly representative national sample, the only major city excluded was Auckland. Each centre was visited for two days, during which time two children were observed for 2 hours each and an observational checklist of the centre environment was completed.

Two infants under two attending for more than 20 hours a week, a male and a female (if this was possible), were randomly selected from the centre's roll of under two-year -olds. There were 101 girls and 99 boys in the sample. Their average age was 16.4 months with a range from 1 month to 26 months. All of the infants except one aged 26 months were two years or under.

INSTRUMENTS

Observations: Each child was observed for 2 waking hours - 1 per day on 2 different days. Different periods of the day were sampled though there was often little choice of observation time since these had to be fitted in with the schedule of interviews and the child's sleep and arrival/departure times. Fifty minutes of each one hour observation was used in a structured observation procedure and the rest for a 10 minute running record . The structured observation was done using an observation schedule devised by Ted Melhuish and Carollee Howes and modified by us for use in the current study. The child was focused on and behaviour coded at 30 second intervals according to which type of the following main sub-categories of behaviour occurred:- infant-initiations, adult responses to child initiations, adult initiations, activities, and peer interactions. The Melhuish/Howes measure assesses sensitivity and responsiveness of the caregiver environment. Detailed categories and definitions may be obtained from the author.

Abbott-Shim Assessment Profile: This is an observation checklist (Abbot-Shim & Sibley, 1987) for evaluating early childhood centres in terms of whether they facilitate the learning and

development of children. Data was collected to complete the profile over the 2 days spent in most centre. Three methods of data collection - observation, review of documents and reports based on interview questions - were used. Criteria are all dichotomous variables and are scored either as `Yes' -observed or `No' - not observed or not observed to occur consistently. The scale has well established validity and reliability (Abbott-Shim, Sibley & Neel, 1992; Scarr, Eisenberg & Deater-Deckard, 1994). The Administration Scale and the Infant Scale were used for this study. The Administration scale consists of 5 sub-scales - Physical Facilities, Food Services, Program Management, Personnel, Program Development. The Infant Scale consists of the sub-scales, Safety and Health, Nutrition, Learning Environment, Interacting, Individualizing. Minor modifications to some of the items had to be made in order for the scale to be suitable for a New Zealand context.

Running Record Data: This was collected in addition to the structured time sampled observations. Each child was observed using running records of the child's activity in context for 10 minutes for each of the 2 observation days. An attempt was made to sample different times of day, but as explained previously this was often not possible. All running records were read and every instance of a joint attentional episode coded. Joint attention was defined as when both adult and child were attending to some activity, object, conversation or game. Brief one or two turn interactions were excluded. Joint attention episodes were sometimes interrupted by other activities but when thus separated they were counted as one episode. There had to be at least two turns taken by the adult and an overt reciprocal exchange where adult and child together interacted over an activity, object, conversation or game. Although most activities involved one to one adult to child exchanges, activities where an adult was involved together with a small group were not excluded. To be included, however, the child had to show direct engagement with the adults in reciprocal activity. Brief invitations to play, praise for some child action, or distal comments on something the child was doing were not included in the definition of joint attention.

The contexts for joint attention episodes were categorised into the following divisions:-

1. Books or pictures (including murals and posters)
2. Caregiving (including diaper changing, dressing, washing, feeding)
3. Large motor (including balls, trikes, swings, slides, climbing equipment)
4. Objects toys (any toys or objects except dolls)
5. Creative or messy play (painting, crayoning, felt pens, print making, water, dough, bubbles, gloop)
6. Construction (puzzles, duplo, lego)
7. Sand
8. Body related (peek-a-boo, walking, pointing to and naming body parts)
9. Dolls
10. Talk (talk about absent thing or person or animal or events taking place in distance, vocal play)
11. Adult organised Activities (singing, dancing, baking, tidying)

RELIABILITY

The Assessment Profile: This instrument was standardised in 53 preschool classrooms and 44 child care centres in Atlanta, Georgia in 1989. Cronbach's alpha varied from a low of .79 for Scheduling to a high of .97 for Individualising while Spearman-Brown corrected split-half reliability varied from .81 to .98. During the training process researchers in the present study kept in regular communication about interpretation of items in a New Zealand context and two Dunedin observers conducted an independent assessment of the same centre. Their percentage of agreement across the items was 95.6%.

The Melhuish/Howes Observational Schedule: At the beginning of the study the four researchers had a 3 day meeting working on improving the reliability of observation and the senior author visited the researchers in the field twice during the study. Five reliability checks were carried out with members of the research team by the senior author. On two occasions this was done by researchers looking at the same child for one hour in a childcare centre but on the other 3 occasions 30

minute videotaped observations of a child were used and scored independently. The percentage of agreement for the *in situ* observations were 93.2% and 92.6%. The percentage agreement for the videotaped observations were respectively 84.2%, 80.2% and 80.6%. Overall the average reliability over the 5 checks was 86.2%.

Procedure: Three research assistants, based in Dunedin, Wellington and Hamilton were responsible for collecting data from centres within a radius of 3 hours drive from their home. Anne Smith also collected data in four centres in the Hamilton, Wellington and Dunedin areas. Also the Wellington researcher spent a month in Christchurch collecting data from that city. The team of Anne Smith and 3 research assistants met for 3 days at the outset of the study to finalise details of research procedures including observation techniques. Videos of infants were used to train observers in a common categorising system and to develop reliability. Each researcher returned to her home base and trialled observation procedures for several days before beginning data collection proper. Anne Smith visited each researcher at the beginning and in the middle of the study. Two days were normally spent by each researcher in a centre to interview staff, distribute and collect parent questionnaires and observe children.

RESULTS

Children were initiating interactions with adults in 44% of the observation intervals. Figure 1 shows the average level of observed behaviour by the 200 infants and their caregivers. The most frequent type of initiation was vocalising which occurred in about a third of all intervals. All of the other types of initiations occurred in less than 5% of intervals - crying in 4%, request in 4%, positive affect in 4% and physical in 2%. Children's initiations were responded to in some way in 24% of all intervals. Children made a response and were ignored by adults in 26% of all intervals. Positive responses were the most common adult response and these occurred 12% of the time, followed by neutral responses (10%). Incidental teaching was a rather infrequent type of response and occurred in only 6% of intervals while negative responses were even more rare (.89%).

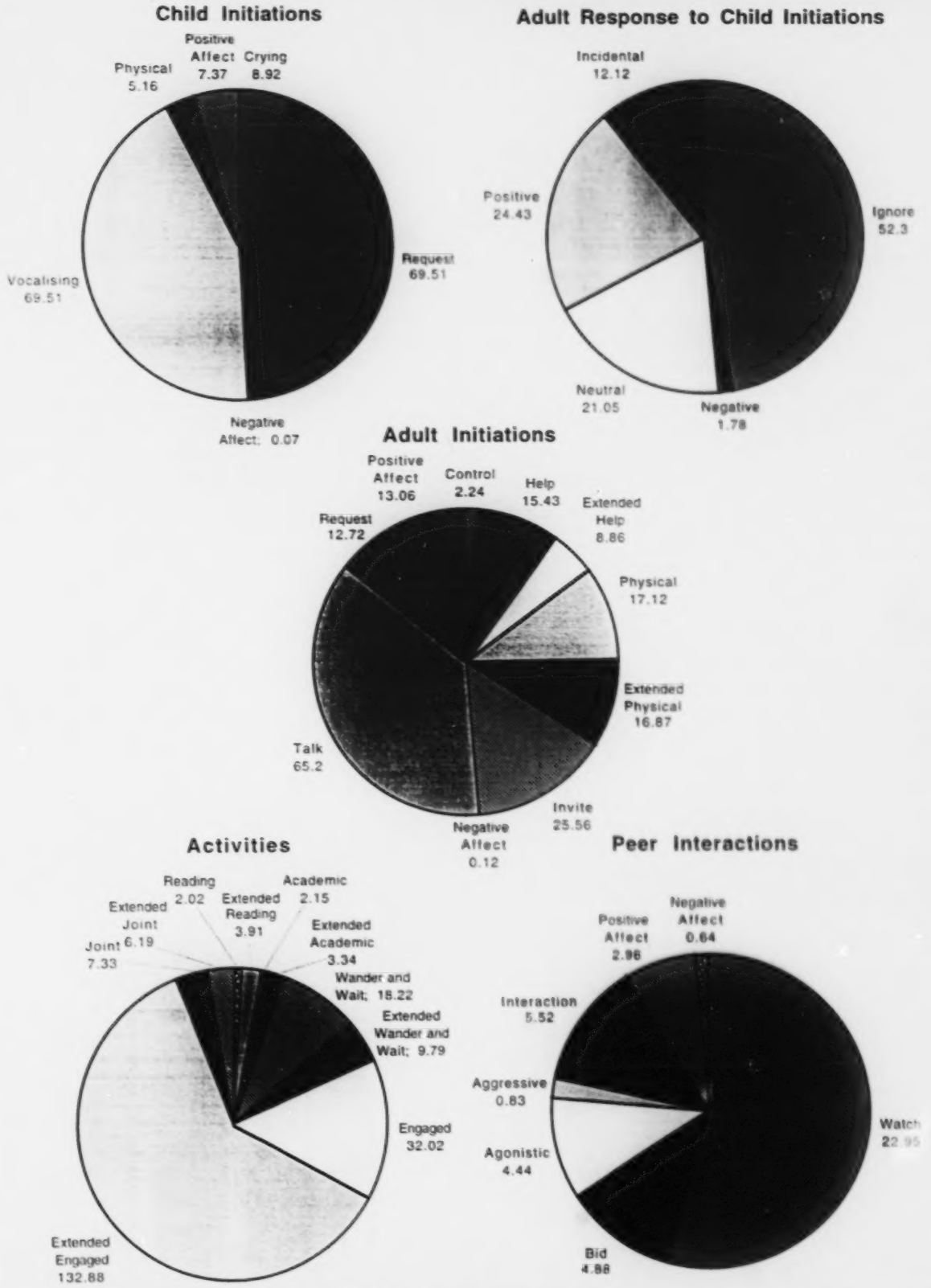
The most frequent type of adult initiation to children was talking which occurred in 33% of all intervals, followed by physical initiations (both brief and extended - 17%), help (12%), and inviting (13%). Other types of initiations occurred in less than 10% of intervals. Positive affect was much more common (6%) than negative affect which almost never occurred (.06%).

Children were engaged in the vast majority of intervals (about 83% for extended plus brief engagement) and more often for the full 30 seconds (extended engaged = 66%) than for less than 20 seconds (engaged = 16%). Children wandered or waited for 14% of their time, were involved in joint activities with an adult about 7% of the time but were read to (3%) and involved in academic activities (3%) a negligible amount of the time. Children were in proximity to an adult in 40% of intervals and in proximity to a peer in 45% of intervals.

Peer interaction was less frequent than adult/child interaction but some form of peer interaction occurred in about 20% of all intervals. The most likely type of peer activity was to watch other peers (11%), followed by actual interaction (6%). Positive bids only occurred in 2% of intervals and positive affect in 1%. Negative behaviour to peers were very uncommon, with agonistic behaviour occurring in 2% of intervals, aggressive behaviour in .4%, and negative affect in .3%.

RESULTS

Figure 1
Observations of Child and Adult Behaviour (Means[1])



[1]Means represent the average number of intervals (out of 200) where these behaviours occurred. More than one category of behaviour can occur per interval.

Qualitative Data:

The following extracts from researchers' anecdotal notes are taken from centres identified by researchers as a "good" and poor centre. For each extract a segment of the running record data collected on children attending these centres is added.

CENTRE A

Extracts from Researcher Anecdotal Notes: I felt very much at home in this centre and much enjoyed the contacts with the staff. There was an easy acceptance here of children needing to have special adults and whoever settled in a new child usually became that child's primary caregiver. Only a centre with such generous ratios could provide so many extra activities (such as outings). It is the quality of the staff and how they mediate the programme to the children which counts. There was no feeling of regimentation at all at this centre and children were always given time to follow directions and much patience was shown.

Extracts from Running Record of Child's Behaviour: Target child (TC) has pulled a basket over his head, then he lowers it back to the table. The teacher says: "Where are you?" TC sits and watches teacher and another child talking to each other. The teacher says to TC "You having a good time with that?" Teacher talks to TC about the dough and shows him how to roll a circle of dough. TC watches intently and then makes "Ah ah" noises. He stops looking at teacher and looks closely at the dough-decorating tool he's holding. He touches a piece of dough with his hand then turns attention to the dough tool. Teacher is singing "The wheels on the bus" song and occasionally he looks at her.

Teacher and child have a discussion about sore things and teacher shows TC a sore on her finger. He throws some (duplo) on the floor and both child and teacher talk about keeping pieces on the table. The teacher talks about TC having a little man and also a sheep. TC jumps the sheep around the table. The teacher talks about a cow at the Show at the weekend. TC gets down from the table and goes over to where another teacher is fixing a cloth out on the floor for roller painting. TC sits down in the middle of the cloth. TC finds 2 rollers on a tray and sits on the cloth rolling up and down with a roller in each hand....teacher is nearby and she calls TC several times offering help but TC ignores her and struggles on getting first one hand and then another into the apron. She says "You did well putting that on".

CENTRE B

Extracts from Researcher Anecdotal Notes: The children appeared bored and largely ignored although their basic needs were met. Staff seemed to spend an inordinate amount of time in the kitchen - leaving large groups of children with one staff member. The television was turned on at 2:30 pm and was still going when we left at 3:45 pm. Older children had to sit and watch it and weren't allowed to play with toys. Younger children largely appeared to amuse themselves. There seems to be a large focus on manners, behaving oneself and not being 'naughty'. All the staff went with four parents and had a discussion while the children were left outside with 1 parent and 2 young, untrained relievers. Again children were left to their own devices. They attempt to initiate several interactions with staff but got more attention from the parents (if any are present). Although the adults were in the same room there didn't seem to be much interaction with the children. They talked to each other and about the children rather than to the children, except when they were telling them what not to do.

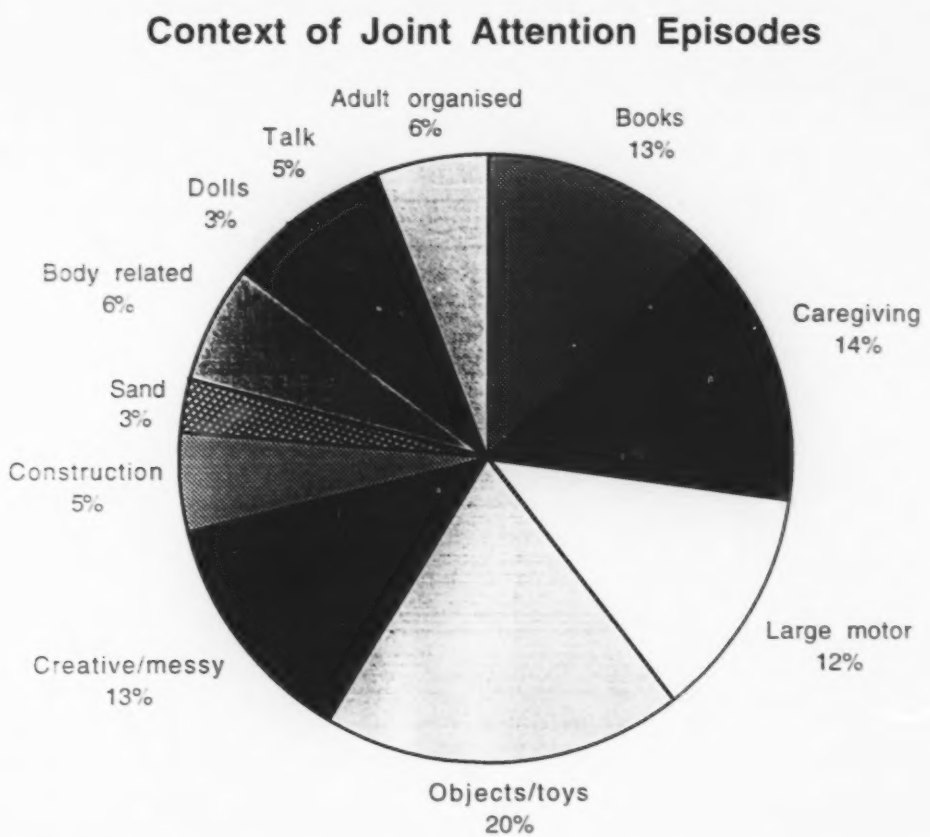
Extracts from Running Record of Child Behaviour: The target child reaches his hand up in the air as if he wants to be lifted. The teacher ignores him, he stands there a little longer and then falls to his knees. "Ahhahhh". The teacher imitates him "Waa waa waa". He crawls away and goes back to the barrier at the door and stands with his hands on the barrier holding himself up. He pulls back and forth like he wants to get out, shaking it. The teacher goes over to him and picks him up "What ya doing there?" She holds him for a few seconds then puts him back down on the floor.

TC just stands there, about 2 metres away from the TV staring at it. He walks over to the teacher and puts his hand in the air - no response.... The other child grabs a truck away from another child. TC cries and gets up and walks away. He walks, crying, over to the barrier at the door.... The teacher lies him on the changing pad and says "Your pants are getting too tight for you mate....you're getting too fat for these". He stands against the toilet, holding onto the bowl. The teacher goes over to him and says "Don't put your hands on the toilet. Come and get your shoes on".

TC gets stuck on the uneven concrete and cries out "Waah". Nobody responds. He gets stuck again "Waah" he cries out and gets half off his trike. He stops moving, half on and half off his trike. He tries to tie a toy onto the bike but can't. "Waaah" he yells out, nearly crying.

Joint Attention Episodes During Running Record Observations

Figure 2



Two hundred and thirty six episodes of joint attention were coded from running records in a preliminary analysis. Of the 200 children observed for the study (for 20 minutes each during 2 running records), 70 experienced no joint attention episodes at all, 62 had 1 episode, 41 had 2 episodes and the remaining 27 had between 3 and 6 episodes. Figure 2 shows the context of joint play episodes. Joint attention episodes occurred most frequently in object and toy related play; followed by caregiving-related activities (such as changing diapers, dressing); books, creative /messy play and large motor play. Joint attention episodes were least likely to occur in the context of sand, dolls and construction.

A one way analysis of variance was carried out comparing the Abbott-Shim Assessment scores of centres where no incidents of joint attention were observed and centres where one or more such episodes occurred. The means of the total Administration scores and the total Infant scores were compared. There was no significant difference (F= 2.61) in the total Administration scores of centres without joint attention episodes (mean = 101.3) and centres with joint attention episodes (mean = 105.1). There was a significant difference (F= 10.15, p = .001), however, on total Infant scores with centres having no joint attention episodes (mean = 92.89) having lower quality scores than centres having one or more episodes of joint attention (98.75).

Qualitative Data

Example of Joint Attention during Painting

> Carer carries K to an area where paints are set up. Carer says "Put an apron on? Don't want to get your clothes dirty. K and carer laugh. "This is exciting". Carer prepares paper for K. K vocalises "eyeee". K painting and says "Mummy". Carer adjusts K's sleeves and writes her name on painting. Carer says "come closer". K dips brush in paints and then on paper. K vocalises "sa ba". Carer says "good girl". A child comes past. Carer says to K. "What colour, want purple?" K dips in brush. Carer, "lovely, good girl". K holds brush with right hand, squats at paints (in tray on the floor). K dips brush, carer comments "Oh, orange, pretty." K paints on the easel, dips brush then paints on paper. Looks at carer talking to another child. The paint tips over. Carer says, "It's alright, these things happen. Painting. It's lovely". K stands, trips forward, and carer steadies her. K painting - drips paint on the paper, looks at children. K vocalises. "da da". Carer replies "lovely". K squats. Carer says, "good girl, you like orange". K laughs, carer laughs too. "Oh how about?" Carer puts pins in to hold paper steady., "Want this colour?" K is becoming frustrated. Carer, "Come a bit closer, it's lovely. K holds brush then changes from left to right hand. K now holds 2 brushes. Carer says "Oh red, look at this yellow". Carer offers brush and K drops it. Carer says "Alright?" K vocalises "ah ah". Left hand holding brush dips it in paint and gives to carer. "Lovely K, look at the colours. K vocalises and laughs. She dips brush in and says "eh". Carer asks "What's that?". K vocalises "ah ah". Carer says "Okay take you to the bathroom. Oh you did a lovely painting, come and wash your hands." (Length of episode 10 minutes, Age of child 16 months).

Example of Joint Attention - Talk over Distant Object

> J gazes out of the window. She vocalises loudly. Carer says "What are you looking for? The hedgehog? He's gone away now. All the leaves have gone away too". J. emits another long loud vocalisation gazing through the window to outside. Carer says "Do you want some morning tea?" (Length of episode about 15 seconds, Age of child 22 months).

DISCUSSION

A general picture of the infants in the 100 centres in this study suggests that the children's environment is relatively rich in interaction and stimulation. Most children initiated considerable contact with staff - initiations were observed in just under half of the observation time. A large proportion (about three quarters) of these initiations consisted of vocalisations. Crying, requesting, positive affect and physical initiations occurred less than a 20th of the time. Almost two thirds of children's initiations were responded to by adult, most frequently by a positive response, and slightly less frequently by a neutral response. Incidental teaching where staff attempted to extend children's learning were somewhat less frequent but are likely to have an important impact on quality. Staff almost never gave negative responses to children's initiations. However, rather a high proportion of children's responses (about a third) were ignored. While children did engage in reciprocal interaction with staff for much of the time, staff were unable to respond to every child initiation.

The level of stimulation which children received from staff also seems relatively high, with staff initiating interaction with the observed children in just under half of the observation time. Talking was the most frequent way of initiating interaction with children, comprising about two thirds of all adult initiations. Staff often physically initiated interactions, invited children to participate in activities or helped them in physical caregiving or play routines. For more than three quarters of the time children were engaged in interacting with people or exploring their environment. They did, however, spend about 14% of the time wandering aimlessly or waiting for something to happen (to be fed for example) and this is more than is ideal especially as in some centres wandering and waiting occurred much more often. While it is inevitable that there will be some transitional time without engagement it is not desirable for this to occur too much. Joint activity with an adult is another category which occurred rarely (7%). Infants were also rarely read to or involved in more educational activities (such as doing puzzles). While it might be expected that with children this age such educational activities would not be very frequent it is disappointing that they were so low. Even young infants can enjoy stories and activities with some challenge.

Interaction with peers was observed in about a fifth of intervals although it was much less common than interaction with staff. The most common type of peer activity was watching. The level of negative interaction with peers was very low - neither agonistic or aggressive behaviour occurred much at all and negative interactions generally occurred in less than 2% of all intervals.. There seems little cause for concern about children interacting negatively with peers. Positive interactions were, however, almost as unlikely to occur as negative ones.

The qualitative extracts illustrate the large differences in quality of care provided by different centres. While the general picture appears encouraging there are major variations between centres. Centre A provides a very child-focused environment where children are responded to as individuals and given considerable attention and interaction. Interactions occur with children in the context of joint activity over interesting activities so that genuine conversations occur. Teachers are there to help but they are not intrusive. Centre B, on the other hand, presents a picture of boredom, inactivity and frustration. The staff have little interest in playing or interacting with children. There is not enough for children to do and they are left unattended to interact relatively unsupervised with sparse material. Adults are not available to facilitate their activities and their interactions with children are largely confined to control and negative comments.

About a third of the children in the study (35%) did not experience any joint attention episodes with caregivers during running record observations which is surprisingly high. Objects and toys, messy activities and caregiving routines are particularly rich contexts for the occurrence of joint attention. The study suggests that joint attention episodes may be an important micro indicator of quality in early childhood environments since centres with joint attentional episodes achieved higher mean scores on overall infant quality (including Safety and Health, Nutrition, Learning Environment, Interacting, Individualizing). Being involved in a common activity and sharing current and past experiences provides a rich learning environment and is related to overall quality.

The qualitative examples of joint attention show that episodes can be very brief or very long. That a 16 month child can be totally engrossed in a painting activity for 10 minutes is surprising. The first episode also shows the variety of the scaffolding which adults can provide for children. The adult is providing physical help in how to hold and wield the brush, stand close to the picture, secure the paper on the easel and prevent the paint tipping over. Also children are being exposed to language and their language is being responded to in a reciprocal manner. The child is also being immersed in meaningful language relevant to the context and task. She learns about different colours and shapes and the overall goal of making a picture. There is a warm affective relationship and a context of intersubjectivity so that the adult is able to interpret the difficulties and provide the help where it is needed, and the child can be provided with as much but not too much information to help her accomplish the goal. The second example is much briefer but interesting because it builds on assumptions of shared experience and understandings between an adult and child. Building up a shared frame of reference for language is an important pre-requisite for communication.

The current study suggests that on the whole New Zealand childcare centres for infants do provide a sensitive and responsive environment and that many children are happily engaged in activities for much of their time. Infants do usually receive plenty of adult stimulation through conversation, touch and invitations to participate in activity. Most infant childcare centre environments combine caring and learning oriented activities (educare) and provide a dynamic context for learning in most cases. Stimulating and responsive adults provide a reciprocal context for children's growth and development. Joint attention episodes provide a rich context for developing many children's social and cognitive skills in these centres.

The negative side of the findings is the lack of learning oriented interactions and the empty time. Children should not be wandering and waiting so much. Many times we observed children waiting for relatively long periods for adult attention - these waits were often in the context of physical caregiving or mealtimes. There are also a number of important and productive teaching strategies which do not happen often enough. For example incidental teaching ,which is important for young children's learning because it helps them to gain control over their own environment and supports further positive initiations, only happened rarely (Wheldall & Glynn, 1989). Also the relatively low level of joint adult/child engagement in activities is unfortunate since it is within a context of mutual engrossment in activity that opportunities for communication and development of shared meaning occur. Almost a third of children recorded no episodes of joint attention during running records. There was also a surprisingly low level of involvement in reading or other "academic" activities. Staff appeared to believe that infants were too young to enjoy more goal-oriented activities yet early interest in stories, puzzles and other learning material is clearly a useful foundation for further learning . Almost any activity which is appropriate to the child's level of understanding, however, including playful and interactive caregiving routines such as diaper changing, can provide a framework for advancing children's learning. What is disturbing is that some children do not experience joint engrossment in any activity. Children do not get the chance to know others' minds so that they can construct understanding of their culture and language, unless there is an environment which permits adult-child engagement. Clearly structural conditions such as staff child ratio and group size will effect such opportunities. In my view, though, a fundamental need is for early childhood staff to be trained, so that they understand the fundamental importance of close intersubjective relationships between adults and children and the need for shared social activities in the zone of proximal development.

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